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## Influence of gender role attitudes on smoking and drinking among girls from Jujuy, Argentina

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### Abstract

**Objective**—Evaluate effect of gender role attitudes on tobacco and alcohol use among Argentinean girls.

**Method**—Cross-sectional survey of 10th grade students attending 27 randomly selected schools in Jujuy, Argentina. Questions about tobacco and alcohol use were adapted from global youth surveys. Five items with 5-point response options of agreement-disagreement assessed attitude towards egalitarian (higher score) gender roles.

**Results**—2,133 girls, aged 13-18 years, 71% Indigenous, 22% mixed Indigenous/European, and 7% European responded. Of these, 60% had ever smoked, 32% were current smokers, 58% ever drinkers, 27% drank in previous month, and 13% had 5 drinks on one occasion. Mean response to the gender role scale was 3.49 (95% CI=3.41-3.57) out of 5 tending toward egalitarian attitudes. Logistic regression models using the gender role scale score as the main predictor and adjusting for demographic and social confounders showed that egalitarian gender role was associated with ever smoking (OR=1.25; 95% CI 1.09-1.44), ever drinking (OR=1.24; 95% CI 1.10-1.40), drinking in prior month (OR=1.21; 95% CI 1.07-1.37) and 5 drinks on one occasion (OR=1.15; 95% CI 1.00-1.33), but was not significant for current smoking.

**Conclusion**—Girls in Jujuy who reported more egalitarian gender role attitudes had higher odds of smoking or drinking.

### Keywords

gender role; tobacco use; alcohol use; adolescents; Latin America; Indigenous

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### Conflict of Interest Statement

The authors declare that there are no conflicts of interest.

## Introduction

In Argentina smoking and moderate alcohol consumption among adults are common. (Ministerio de Salud y Ambiente de la Nación, 2011) By age 15, 21.1% of boys and 27.3% of girls reported smoking (Ministerio de Salud y Ambiente de la Nación, 2009) and consumption of one drink of alcohol per day, was twice as prevalent as current smoking (Linetzky et al., 2011). Gender role attitudes and gender identity were reported to have a role in explaining gender differences in tobacco and alcohol consumption in high-income countries (Epstein JA et al., 1998, Huselid and Cooper, 1992) and in Mexico (Lara-Cantu et al., 1990). Studies about the association between egalitarian gender role attitudes and consumption of tobacco and alcohol showed complex relationships in Northern societies (Hunt et al., 2004, Emslie et al., 2002) but there are no studies from South America. We hypothesized that Argentinean adolescent girls, particularly those who hold more egalitarian attitudes, may be at higher risk of tobacco and alcohol use. In this study we explored the relationship of gender role attitudes with tobacco smoking and alcohol consumption behavior among girls from Argentina.

## Methods

In 2006 a self-administered survey was given to 10th graders residing in the northwestern province of Jujuy. (Alderete et al., 2009) Items were derived from U.S. adolescent surveys and developed by the researchers. Respondents reported their sex, age, race/ethnicity, job status, work in tobacco growing and/or selling, whether they had repeated a grade in school and family characteristics.

We constructed a preliminary scale to assess adolescents' perception of egalitarian versus non-egalitarian gender roles after reviewing available literature. (Lara-Cantu MA, 1989, Gibbons JL et al., 1991, Schmitz K and Diefenthaler S, 1998) The questionnaire was reviewed by experts and pretested using in-depth interviews to evaluate comprehension and face validity.

The scale consisted of 10 items with ordered response options from 1 (strongly agree) to 5 (strongly disagree). A 2-factor model was created and a 5-item factor with a Cronbach alpha of 0.72 was identified. The final five items asked about women staying at home to care for children, men working to earn a living for the family, women accepting men's decision if they disagree, women working outside the home leading to more crime by youth, women belonging in the home and not in work outside the home. The scale was scored as the average item response so, higher numbers reflected more egalitarian attitudes.

Smoking behavior questions were adapted from adolescent surveys used in the U.S. (Centers for Disease Control and Prevention, 2000 and Gilpin EA et al., Tobacco Control Success in California: A Focus on Young People, Results from the Tobacco California Surveys, 1990-2002) Respondents were classified as "ever smokers" if they ever tried even a puff and as "current smokers" if they had smoked in the past 30 days. (Warren CW et al., 2000) Students were asked about parental smoking, the number of their friends who smoke, and a measure of smoking media literacy, defined as the ability to analyze and evaluate media messages related to tobacco. (Salgado MV et al., 2011) Alcohol use items were adapted from adolescent surveys in the US (Centers for Disease Control and Prevention, 2000) and were classified as "ever drank" if they ever tried alcohol, "current drinker" if they drank at least one alcoholic beverage in the previous month, and among current drinkers, a third category if they had 5 drinks on one occasion in the previous month.

Descriptive analyses compared the sample by smoking and drinking status and bivariate comparisons tested for significance using a chi-square statistic. A logistic regression model

was estimated for the outcomes of “ever smoking”, “current smoking”, “ever drank”, “current drinking”, and “consumed 5 or more drinks at one time” using the gender role attitudes scale as the main predictor. We adjusted for age (integer categories with oldest as referent), race/ethnicity (European as referent), and other variables that we previously found to be associated with smoking behavior including having a job (no job as referent), religion (Catholic as referent), repeating a grade in school (no as referent), parental education (Graduated from college as referent), living with both parents (no as referent), living with someone who smokes at home (no as referent), having 5 or more friends who smoke (five or more as referent), depressive symptoms in previous year (No as referent), worked in tobacco growing and/or selling (no as referent), and smoking media literacy (low score as referent). (Alderete et al., 2009; Salgado MV et al., 2011) All analyses adjusted for clustering of students within schools via generalized estimating equations.

## Results

Respondents were 2,133 girls, aged 13-18 years. The majority of respondents were of Indigenous background (71%), 35% had a job, 40% had repeated a grade, 51% reported that their parents had less than seven years of formal education, 59% were exposed to second hand smoke at home, 56% had five or more friends who smoke, 47% reported depressive symptoms and 63% had low smoking media literacy score. All these variables were significantly associated with the smoking and drinking outcomes in bivariate analyses (see Table 1).

Ever smoking was reported by 60% and 32% had smoked cigarettes in the previous 30 days. Ever use of alcohol was reported by 58%, 27% reported drinking in the previous month, and 13% had 5 drinks in the past month. Table 1 summarizes the individual and family characteristics of the sample by smoking and drinking behavior. The overall mean score of the gender role attitudes scale was 3.49 (CI 95% = 3.41-3.57) with limited variation by any of the variables listed in Table 1. Gender role attitudes means for each item ranged from a low of 2.97 (95% CI = 2.85-3.09) for the item on “having the husband provide financial support while the wife remains home”, to a high of 4.15 (4.08-4.22) for the item that “woman must accept husband’s decision if she disagrees on a family topic.” Among these study participants, the mean scale and item response levels were at or above the scale midpoint (i.e., 3.0 = agree), suggesting a general tendency on average toward more egalitarian gender roles attitudes.

Table 2 shows the results of the multivariate logistic regression models of gender role attitudes with the five outcome variables. A more egalitarian gender role attitude was significantly associated with a higher odds of ever smoking (OR=1.25; 95% CI 1.09-1.44), ever drinking (OR=1.24; 95% CI= 1.10-1.40), drinking in the last month (OR=1.21 CI95% 1.07-1.37), and drinking 5 or more drinks on one occasion in the previous month (OR=1.15; 95% CI=1.00-1.33), but not with current smoking (OR 1.17 95% CI=0.99-1.39).

## Discussion

Among predominantly indigenous girls who were mostly from low-income families in Jujuy, Argentina, those who ascribed to more egalitarian gender role attitudes had greater odds of ever smoking or drinking. Studies from other countries have reported similar findings (Huselid and Cooper, 1992, Emslie et al., 2002, Morrow and Barraclough, 2003). These findings are relevant to developing strategies on how to prevent women from initiating tobacco and excessive alcohol use as they obtain more education, become incorporated into the work force and develop more egalitarian gender role perspectives.

Identifying ways to maintain less risky behaviors among girls as educational and occupational opportunities become more available is a public health challenge.

Factors known to be associated with cigarette smoking in this sample were also associated with alcohol use and would imply that the same youth use both substances. Egalitarian gender role attitudes were a more significant factor in “ever” smoking or drinking than in smoking or drinking in the previous month. It is possible that initiation of substance use is associated with greater egalitarian gender role attitude but that other factors become more important in continuing use of tobacco or alcohol.

Our study has several limitations. The questionnaire was adapted from items developed in other countries (Mensch B et al., 2000, Hunt et al., 2004, Gibbons JL et al., 1991, Huselid and Cooper, 1992), and may have missed topics relevant to girls in Jujuy. The sample of 10th graders in Jujuy may not be representative of other age groups and may not generalize to other Latin American populations. Our scale measured attitudes toward women’s role in family and society and did not address the gender identity construct of affective femininity or aggressive masculinity that were associated with substance use in Mexican adolescents. (Kulis et al., 2008, Lara-Cantu et al., 1990)

Promoting egalitarian gender role attitudes among girls has multiple societal advantages (Kaplan C et al., 2002), however, the transition to a more egalitarian relationship may also be associated with the initiation of risk behaviors favored by the industry’s marketing campaigns. It is necessary to counter these campaigns by portraying that the ‘modern’ woman as someone who strives for healthy life styles.

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### Highlights

- We explored if gender role attitudes have a role in explaining differences in tobacco and alcohol consumption in Argentina.
- Participants represent a population sample of mostly Indigenous girls from the heartland of South America.
- Girls in Jujuy who ascribed to more egalitarian gender roles have higher odds of smoking or drinking than those who did not.
- This results could be used for the development of strategies to prevent girls from initiating smoking and drinking

**Table 1**  
**Individual, Family Characteristics, and Risk Factors by tobacco use, and alcohol consumption in 2133 girls, age 13 to 18 years, Jujuy, Argentina, 2006**

Variables	Total Sample N= 2133	Ever Smokers <sup>1</sup> N=1277 (60%)	Current Smokers <sup>2</sup> N= 694 (33%)	Ever drinkers <sup>1</sup> N= 1228 (58%)	Current drinkers N=573 (27%)	Consume 5 drinks at one time <sup>3</sup> N= 274 (13%)
N	N (%) <sup>4</sup>	N (%) <sup>4</sup>	N (%) <sup>4</sup>	N (%) <sup>4</sup>	N (%) <sup>4</sup>	N (%) <sup>4</sup>
<i>Age</i>						
13-14	96	51 (53.1)	25 (26.3)*	45 (46.8)	27 (28.1)*	9 (9.3)*
15	1144	658 (57.5)*	333 (29.2)*	647 (56.7)	305 (26.7)*	129 (11.3)*
16	491	310 (63.1)*	168 (34.4)*	284 (57.8)	124 (25.4)*	68 (13.9)*
17	274	179 (65.3)*	122 (44.6)	173 (63.1)*	83 (30.4)*	46 (16.7)*
18	128	79 (61.7)	46 (35.9)	79 (61.7)	34 (26.5)*	22 (17.1)*
<i>Race/ Ethnicity</i>						
Indigenous	1471	868 (59.0)*	466 (31.8)*	807 (54.9)	374 (25.4)*	172 (11.7)*
European	136	78 (57.3)	48 (35.2)	91 (67.4)	45 (33.3)*	22 (16.1)*
Mixed Indigenous	454	284 (62.5)*	152 (33.6)*	279 (61.4)	135 (29.9)*	69 (15.3)*
<i>Have a Job -yes Religion</i>	740	509 (68.0)*	290 (39.2)*	470 (63.5)*	215 (29.2)*	118 (16.0)*
Catholic	1806	1108 (61.3)*	607 (33.7)*	1060 (58.8)*	499 (27.7)*	231 (12.8)*
Christian Evangelical	228	117 (51.3)	58 (25.5)*	105 (46.0)	41 (17.9)*	20 (8.8)*
Other	92	48 (52.1)	27 (29.3)*	59 (64.1)	29 (31.5)	22 (23.9)*
Repeated grade	848	557 (65.6)*	351 (41.4)*	507 (59.7)*	243 (28.7)*	131 (15.5)*
<i>Parental Education</i>						
No formal	148	90 (60.8)	51 (34.4)	75 (51.0)	37 (25.1)*	19 (12.8)*
Elementary	957	570 (59.5)*	313 (32.8)*	525 (54.9)	232 (24.3)*	118 (12.4)*

Variables	Total Sample N= 2133	Ever Smokers N=1277 (60%)	Current Smokers <sup>2</sup> N= 694 (33%)	Ever drinkers <sup>1</sup> N= 1228 (58%)	Current drinkers N=573 (27%)	Consume 5 drinks at one time <sup>3</sup> N= 274 (13%)
N	N (%) <sup>4</sup>	N (%) <sup>4</sup>	N (%) <sup>4</sup>	N (%) <sup>4</sup>	N (%) <sup>4</sup>	N (%) <sup>4</sup>
( > 7 years)						
High school	640	378 (59.0)*	217 (34.0)*	375 (58.5)	170 (26.6)*	82 (12.8)*
Technical or Service training	277	171 (61.7)	78 (28.2)*	171 (61.7)	93 (33.5)	36 (13.0)*
University	96	55 (57.2)	26 (27.0)*	68 (71.)	37 (38.5)	16 (16.6)*
Living with both parents	1367	776 (56.7)*	423 (31.0)*	761 (55.7)	366 (26.8)*	172 (12.6)*
Someone smokes at home	1242	836 (67.3)*	485 (39.2)*	791 (63.8)*	388 (31.3)*	190 (15.3)*
Number of friends who smoke						
None	282	94 (33.3)	23 (8.2)*	81 (28.3)*	20 (7.1)*	5 (1.7)*
1 - 4	560	321 (57.3)*	150 (26.9)*	307 (55.1)	124 (22.1)*	52 (9.3)*
5+	1097	760 (69.2)*	464 (42.4)	738 (67.2)*	380 (34.8)*	190 (17.3)*
Depressive symptoms	980	633 (64.5)*	365 (37.5)*	612 (62.5)*	311 (31.8)*	151 (15.4)*
Worked in tobacco agriculture	214	158 (73.8)*	91 (42.5)	141 (65.8)	67 (31.6)*	40 (18.9)*
Ever sell cigarettes	54	35 (64.8)	22 (40.7)	41 (75.9)	24 (44.4)	10 (18.5)*
Smoking Media						
Literacy						
High	748	425 (56.8)*	212 (28.4)*	424 (56.8)	203 (27.2)*	96 (12.8)*
Low	1291	790 (61.1)*	448 (34.8)*	757 (58.6)*	347 (27.0)*	168 (13.0)*

\* p &lt; 0.0001



- <sup>1</sup> Ever smoking or ever drinking refers to lifetime
- <sup>2</sup> Current smoking defined by smoking at least one cigarette in the previous month
- <sup>3</sup> Drinking = 5 drinks in the previous month (see text for more details)
- <sup>4</sup> Number and Percent of respondents reporting smoking or drinking behavior

**Table 2**

Multivariate logistic regression models for each Smoking and Alcohol Use Behavior outcome with OR reported for egalitarian score on gender role scale for 2133 girls, Jujuy, Argentina, 2006.

Outcome	OR	95% CI
Ever smoker	1.25	1.09-1.44
Ever drinking	1.24	1.10-1.40
Current drinkers	1.21	1.07-1.37
Current smoker	1.17	0.99-1.39
Consume 5 drinks at one time	1.15	1.00-1.33

Models were adjusted for age (oldest), race/ethnicity (European), religion (catholic), having a job (no), parental education (graduated from college), living with both parents (no), number of friends who smoke (five or more), have ever repeated a grade (no), second hand smoke exposure at home (no), depression (no), have worked in tobacco growing (no), have worked selling tobacco products (no), and smoking media literacy score (high or low), the referent for each category is into brackets.

The odds ratio is the average multiplicative increase in the change in odds of the outcome with a one-point increase in the gender role scale (e.g., from 'strongly disagree' to 'somewhat disagree').

Each outcome used the gender role scale score as the main predictor so that egalitarian gender role predicts behavior..